Notebook, N-03-02-27.2

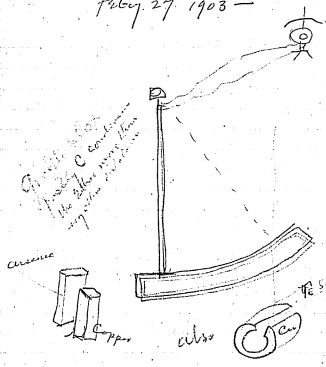
This notebook covers the period February-May 1903. All entries are by Edison. The book contains notes and drawings regarding various experimental projects, such as the hardness and composition of phonograph cylinders, x-rays, etheric force and "xyz rays," and storage batteries. Also included are several pages of notes pertaining to phonograph recording apparatus and to the recording of wireless sound transmissions. A notation from April 1903 indicates that some of this material was recopied into an unidentified "big book." The pages are unnumbered, and at least one page has been removed from the book. Approximately 60 pages have been used.

April 9 — 3 times 19 —

63

19
3
57

Feby 27. 1903 —



2 substances one Condensing the Ether the other displacing E. — Try various Metals + Non Metals acids + Amalgams in tubes, Etc at right angles + alternate also try all the Metals in U shape. for Rick when magnetized by Coil very strong

Feby 27 1903

also closed rings of a Ether Condenser + Displacer - overcome with Cold - get Kick also

and

also 2 metals one of which displaces Σ less than the other, Cu Pb — Etc.

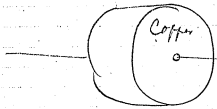
Try little Zinc hydroxide dissolved in KOH by Mfe Storage.

Run Curve on Mfe Storage in partial Vac —

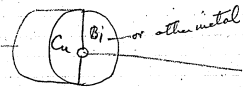
Does silent discharge give Metallic Vapor, probably pb found Records give spectrum of the Metal ⊥

Febry 27. 1903

If Tripolite proves a success for plating Try Copper plating of OK patent

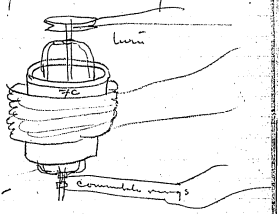


If Ether displaced by Cu a 20 lb Cylinder with 1/32 hole should effect transmission of Earth light or



Feby 27 1903

Perhaps a swinging pendulum with Cu or other metal to pass between the Conductors. Could get swings per minute when Electricity might not be given or produced only heat.

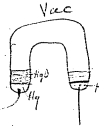


Wires that diaphragm or conductors Either —

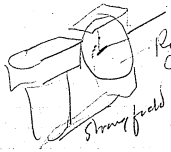
What do we get by the dev

In trying Incandescent Lamps with Cover wire + allowing it as a Conductor, have globule Hg in to increase Conductivity —

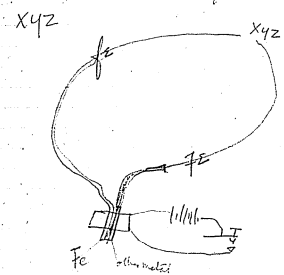
Feby 27 1903



Vac Storage,



Feby 27 1905


XYZ
XYZ
Fe
Fe
Fe
Z
pt
mag like Hermite,
X
Heat X end very
hot Z end
so it Conducts —
measure Voltage

K_2O

K H O
K H

K H O
K O H

Feby 27 1903

possibly peroxid lead in fine powder mixed with Zinc dust + put in Vac undergo slow oxidation, possibly other mixtures better, $HgO + Zn$

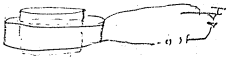
Wood Carbonized by platina heated strip in Vacuo gives no residue no Carbon? using Water decomp. pbly

Try scintillation in closed box with window - with O absorbed by pyrogallic etc, to see change in phenomenon by no combustion,
Try Chlorine, — Try Sulfides Arsenides Phosphides in alloys — Scintillations a Magfield —

As $Ni(OH)_2$ brot up in KOH fused made an anhydrous of peculiar characters. Try all other hydroxides, perhaps this will prove to be a new + useful polymerizing reagent.
Test NiO to see if it is a Compound with KOH

Feby 27 1903

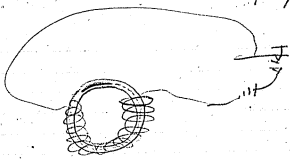
It is probable that some curious things will be brought out by this reaction, might try mixtures of hydroxides — FeOOH + Fe_2O_3 OH, see if ferrite magnetic oxide also that chromic magnetic oxide alloyed —



Cup inside coil, with def things floating on CP water, see if strong ct affects surface tension & cause solid particles to move, also see if there is any def betn Non + Electrolytes.

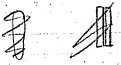
Capillary
See if Coil ct strong ct affects capillary Column Various liquids

Feby 27/903



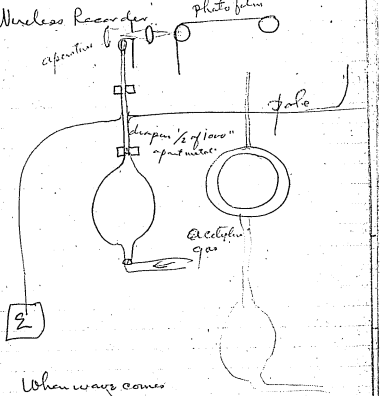
Closed Capillary tube with Hg index
Electrolytic Trouv see which effect.
Ct has no movement of Hg –

Try old Ether & Camb Sr Mattogh –
See How sensitive also with
Spark gap & Coil –



Feby 27 1903

Wireless Recorder



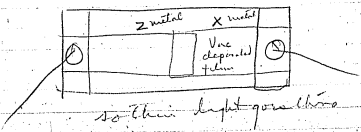
When waves comes
gas expanded light jumps up
to aperature & on photo'd –

Feby 27 1903 –

Instead of using metal diaphragm, Could use two violate spirals of wire on Mica, both in current like Electrodynamometer, ~~[illegible]~~ or when wave comes by mutual attraction, + thus drawing diaphragms together after flame –

Put in sealed tubes Bisulphide Carbon with, CP Copper reduced by H also Fe Ni Zn ~~[illegible]~~ powder, Mg powder, Al powder, ~~[illegible]~~ + set them aside for a month or so if no action, warm up too far as can in safe steam bath device allowing ~~4/5~~ space for expansion –

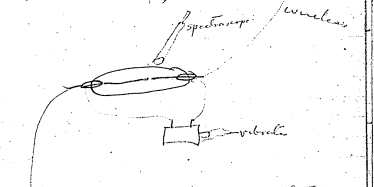
Light Thermo.



so thin light goes thro

Feby 27 1903

Deposit on glass, mica, the various metallic films that will let light through. Then put in as a window of a dark box. Let light shine into dark through film — then pass current thro film also. Ct thro in magnetic field — ct X ray — ct Kenelly light — etc, possibly one kind go thro & kill another,



Phase of Marconi action

Lines in spectrum —

Read Exchange —

March 24 1903

or Carb Strontia, clay etc in water,
Al-Chlor Bengal etc or Tripolite,
or a little Sandy mixed, will work
Gold amalgam dredge, Aluminum
Ferromil. Acetate Sr. Trihyd Aluminum —

Perhaps a revolving metal cylinder
Kept warm & painted with the
Mixture of rubber & bitumen,

Sand block in Bengal, Sand blocks
Floated Clay —
[illegible] Sand & Gravel,
Kaolin China clay [illegible]

February 27 1903

On account of tenacity of Lemonpaint
amongst soaps there will be a
tendency for knifes to clog & produce
vibration, What is wanted is a
substance that has no cohesion —
possibly trihydrate of aluminum,
Amorph Silica etc some dry —
or with alcohol with proper
percent of water in it
possibly [illegible] Iron soaps
+ Carb Sr or trihydrate Aluminum
etc would do —

Try fusible metals of various
kinds brought up nearly to
Melting point for wood cling —

Perhaps Acetate Amy [illegible]
Can be loaded with soaps etc
+ give a good material,

If an amalgam could be found
that would not be affected
it would be good possibly a multiple
amalgam Cheap but gets

Feby 27 1903

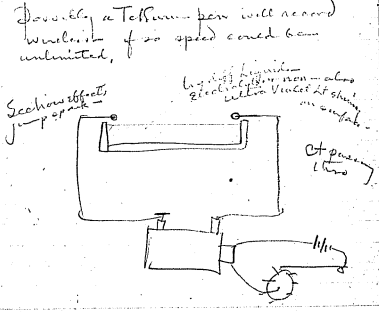
by using Chloroform, Benzol.
Ether, different Ethers, ~~[illegible]~~
~~Etc~~. Bisulphide Carbon — dissolving
different things in might by
dipping get a very fine
powdery. According adhesive —
The rapid Soap. Lathering stiffly
persons, possibly repeating bath would need
Chloride Alu in Ammonia might
Soap & Coarse filmi —
If it is possible to get a different
porous substance such a soap
left by a sponge valonia then
a repowdering point ground
rather strong would be much
better than cutting the block
it would displace the block —
The pores would be the spaces
for displacing — Then is good
direction to work on
Vac deposit would take ages
Burnishing action would smooth
track

February 1903

A bromide paper treated on very weak acid might take out enough to be borne in very serious surface problem [illegible]

Tried air on surface pretty well dried then dipped alcohol etc Quite or Bichloride in Benzol fixed on Nickel [illegible]

Possibly a Telephone pen will record variation of so speed coming from unlimited,



Feby 28 1903

In big Cement Kiln put in small Extra gun and at Clinker mixture in the Exit and to clinker up holes in lining -

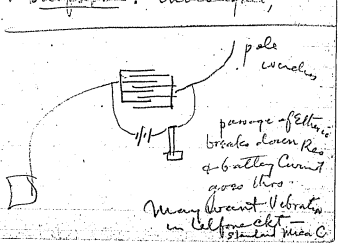
Retry all the Metal points on Carb Illumination & KOH organic - also NaOH, BaOH SrOH, LiOH also, KOH in which is dissolved ZnO CdO, PbO, SiO_3 SnO, Manganty, Th_2O, also try K salts of Cy & Br Cl, SO_3 P, Chr, B,

possibly phosphorescent sulphides give light by Energy absorbed in changing the Sulphur Molecule or rather Crystal from one form to the other,
possibly Iodide of Cmbmd with another Salt to get Calcium Crystal would phos by light,

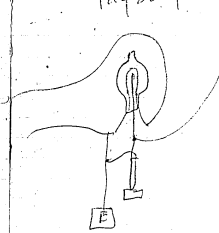
Feby 28 1903

Silver is deposited from every salt in Crystals but every diff solution gives diff Crystals — See of Phosphorescence when deposited in dark — also field X ray heat etc,

Remember those sheets of graphite pressed at Mentle under big screw press what a rapid Conductor Heat they are and burnt papers — now they should Conduct heat but slowly — possibly it travels on the surface? microscopically,



Feby 28 1905



Perhaps Telluride & Selenide of Calcium will phosphorescence also Barium —

Possibly Calcium Carbide put in Bisulphide Carbon or in other liquid & left would decompose & give Crystals of Diamond —
or boiled in Molten Sulphur in sealed tube, or heated with Dry Fe — in sealed tube —
or in Molten Boric acid,
or Dry Chlorine ?? —
also thrown in Molten Compounds

The Calcium Carbide on hot iron H_2O Salt Water Water — also in other compounds & Dry can alloy J —

Feby 28 1903

It is a strange thing that a thin edge of a broken Carbon filament under the Microscope is quite transparent — there is a lot of fine specks but the general substance is transparent.

Dr Read that Phos anhydride is a safe dessicating agt because it has other Phos Oxides volatile, this I know from Experience. Mass says Dry glacial phos acid test I agree to this — hereafter clear it —

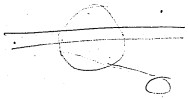
What would be effect of Immersing Carbon fil in Molten Sulphur & then bringing it up quick to Mg O C P —

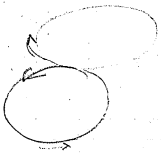
July 28 1903

Hammer says Radium changes
White to Red phos, if thin
so time R may have the
peculiar property of
polymerizing matter + this
matter depolymerizing
gives phosphorescence —

Use a shutter + test all
fluorescence for X ray + light
as well as phosphorescence
to ascertain their quickness
~~of vibration~~

If a layer 10/1000 thick
of powdered Ca tungstate
be placed between two
plates of thin aluminum
acting as a shielding
will it cause deflection
in galv when ray
is vibrating on + off
the Condenser, one plate
being the off plate for any Ray





Feby 28 1903

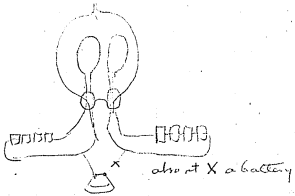
Try Al & Zn plate, also Al. & Cu plate etc —

If X ray causes air to conduct then a condenser with Al plate & charged with high voltage with a glow in it & then the X ray passing thro the Al plate & make air gap of condenser discharge — the shutter of lead — possibly telephone work —

With Wa stand get some of the lamp fit clock with preliminary furnace regulated by auto clock work to bring up in 24 hours & then Vacuum heat & sudden immersion of Sugar solution. Trying running pyrometer to various temps & times —

July 25 1903

Possibly with ~~Zirconium~~ metal in wire in Vacuum Coated flasks filaments with ~~Zirconium~~ Zirconium – & they give white light –



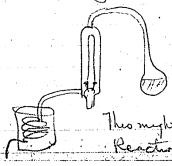
Measures Resistance.

Silicon on sticks coated flasks deposit in Vac by Cook & Crait, glow this might show up some phenom – also Zirconium – also Arsenic Te, Se, – The Si film might be studied in air & thus get film of transparent Silicon –

Feby 28 1903

I wonder if strips of Aluminum wire coated over with salts would not flash the salts & cause them to be deposited in films. This would be immense for experimenting. Give them good trial all things that distill without decomposing would work & they would probably be amorphous & give films. Those soluble in water could be deposited as a film of something only dissolved in the Hydrocarbon. The field would be immense. $ $. —
Oxides films are possible —

Here is a good field —



Distill dif things over lighted filament

also in Vacuo

This might give a new master Reaction in Chemistry —

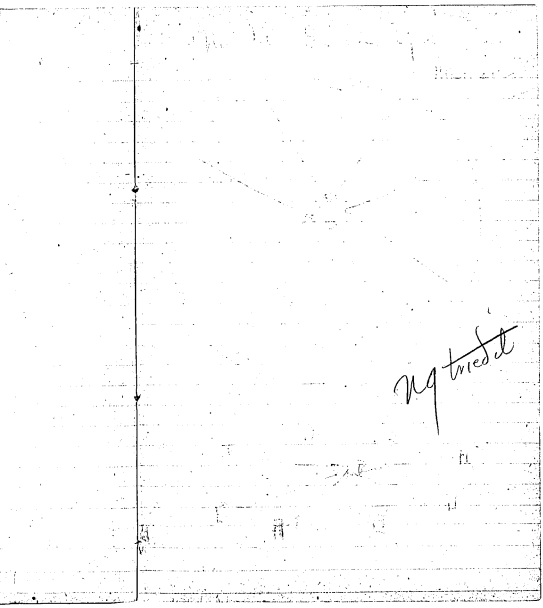
Feby 28 1903

Refract. exp. of Selenium is 14 times as great as CS — the film of Se is no longer trans after 1003 thick

Possibly the process will give it thicker — CuO is semi-metallic

If by a Camera a picture is produced on polished metal plate in an Electric light it is possible on closing the circuit the impulses would be repeated & show a picture where light struck it normal. Either oxidizes more or less or a metal film on plate is —

Why not try a lead specimen or shit a piece of lead glass & photo X ray see if any lines also not fluorescence —


negtried it

Friedtang

March 21 1993

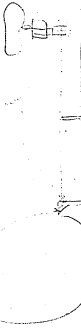
[illegible]

Dim 2 ½" dia [illegible]

[illegible]

Phono Record 21 1903

Turning



3" between parchment

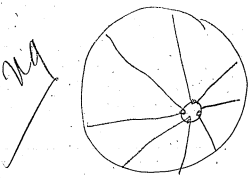
The collapse is a great complaint of Dia. yet reduces on Recording Space

Walter Miller broad stone

Frame 7 yes

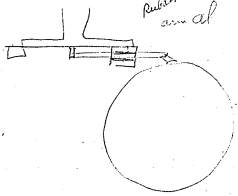
Mch 21 1903

I think that a $2\frac{1}{2}$ diaphragm would be OK for Recording if it could be made as light as glass of $1\frac{1}{4}$ or as Elastic or more so, the adjustable threaded Cat gut Vocal chords with thin Parchment is probably the way to do it. Another idea is to use diaphrams of thin Celloidin & put recording knife off Center so it would get leverage as big dia lines greater amplitude there would be no loss of loudness.



Feb 21 1903

Another idea is to electroplate
annual pan & put the
ammonia & bicarb solution -
also electroplated platinum
pan for point diff tester -



perhaps Colloids like Hydrate
Alumina, Silica (precipitation)
Prussian Blue mixed with a little
glycerine + dried often pressed on
Platinum would make good
Reforming Cylinder the H_2O
would dry + glycerine keep
them from getting hard - Dry in
Vac over H_2SO_4 —

March 21 1903

perhaps would precipitate the Colloid in solution containing proper amount of glycerine, possibly Carbolic Acid might work out just as only the Colloids would work

Mordants, how will AgCl precip with glycerine &c —

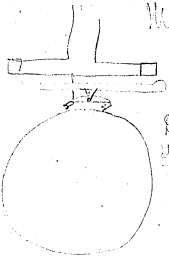
There are other things besides glycerine Chl Zn $ZnCl_2$, Chloracid —

$ChLi$ & these salts which do not become solid on evaporation, on account containing chemical water,

It is likely that there may be several precipitate amongst of Metals, & perhaps that one Metal precipitate Cyanide of — of Iron & Cobalt for. Natural Blue of Mang Alt Ni Zn, Etc —

May be some Organic salts found

Mch 21 1903



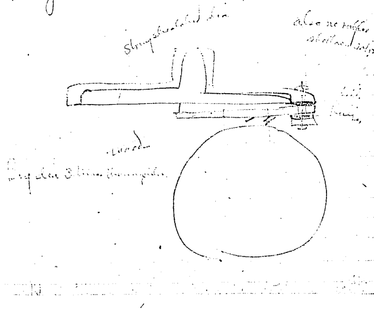
Double recorder
then double receiver
then work equal.

We want a very hard material for
[illegible] — We want then record
[illegible] motor [illegible] get better
quality [illegible]
[illegible] get [illegible]
get the quality —

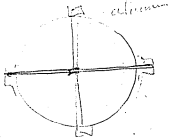
Make a strong lever as [illegible]
a test Marvel. [illegible]
[illegible] about quality.

Mch 21 1903

Try Kepler with Rubber Canvas etc wood etc as metal is less + so it will give + soften the sharp waves – perhaps the Metal lever used is stiff + dont give + gives a sound when it strikes + sort of deep undulation if used an elastic material like Hard Rubber or wood it would give a little, + soften wave also with same size would be 7 times lighter — ? —— Magnesium

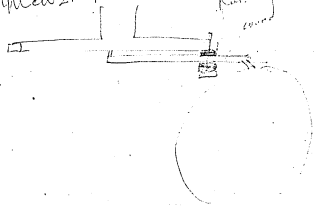


March 24 1903

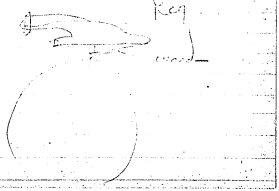


This will be an improvement,

March 21 1903



Rubber on pivot —
cement, which receives in pivot —

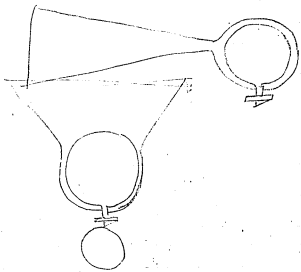


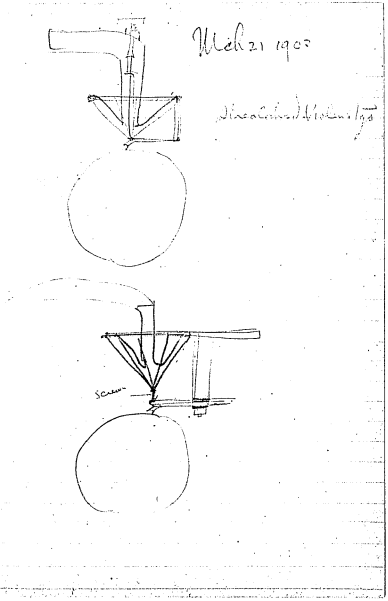
March 21 1903

[illegible] on a [illegible] [illegible]
use a Rubber balloon

Wrong [illegible] tried

The air was compressed
the whole of it, & need inflate
with CO_2.




Mch 21 1905
Screw

Mch 24 1903

We could make an undoubtedly Revival
by using solution for prints — Often in
[illegible]
the gray tints & prints

[illegible] clay are how fine can get
it for Rose Lang Publication, [illegible]
[illegible]
[illegible]
its logarithmic [illegible]

[illegible] Stannic Acetate by
[illegible] — works ok also in Glycerine
[illegible] pressure] —

See finest grain film. Amorph Can get
Cendal plate direct without Vac deposit
1st with gold & Silver — perhaps
Produce process necessary get it fine —

Mch 24 1903

There may be a good germ in using a capillary tube with say 005 hole + using a fluid with a volatile solvent, and vibrate tube up + down in liq. dia. the solution like thick copying ink dries almost instantly - if trouble get it to run could use current to drive it pro osmotically - in water solutions q. Stalve for organic - for air pressure possibly little air warm blown over to compl. act.

Solutions - Sypnan Chloroform
" Benzol
Water, Carbonate Strontia + Sypnan.
Crescent ded Sypnan.
Gutta Percha in Chloro
~~Hf + Sypnan~~ Phenol in Chloral
" " Hat.
Cark Strontia, Chloro + Sypnan (little to work)
" Chloral + Sypnan " "
" Water, gum arabic " "
Water + Gum Arabic alone
Cark Strontia, Acetate Ethyl to work

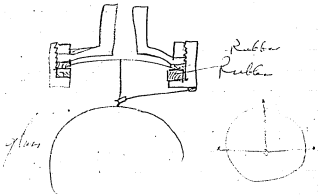
Mch 24 - 1903

Shellacked on

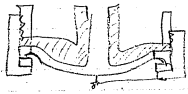
Rubber spots rigidly secured to plate for hampering — Cross of Cl. for knife —

Entered all to the printing book April 15th 1903.

May 25 1903 TCY

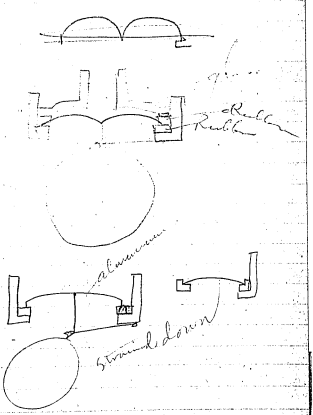


Watch glass diaphragm
Daddy blow bulb & cut it from glass
idea being to make disk more or
elastic, Place rubber to give elasticity



Convex & Concave —

May 25 1903



May 25 1903

It may be essential for obtaining good results if by a little battery to have some acid radicals in solution to stop formation K peroxide or superoxides oxides of Ni which decompose acid and formed give factitious readings

62
990
558 500
277 091 000

2.790 080
2 38.000
25 000
3.053 076
75
15 265 400
21 371 560
228 981 000

15625

4
1.25
1 25
1 25
6.25
200
200
400

1250
1250
6 250
2 500
125 000
1 562 500
3 781 250
3.910 625
95 312 500
781 250
9.765 625

62
62
124
372
3 844
62
7 688
230 625

62
125
125
1 562 5

4 | 22 800 000
3 | 5 700 000
1.900

250
100
25 000

62
75
4 34

Lwn 228 981 000 cm Red. To 1.900 000
9.765 625 dia

15625 | 4000
3 125 000
7 812 500
76 125
25

62
62
124
372
3 844
1 500
192 200 00
3 844 000
576 661 000
3.459 600

16
16
96

62
186
4
744

16
256
1 500
1 280
256
3 841

384 000
6
2.304.000

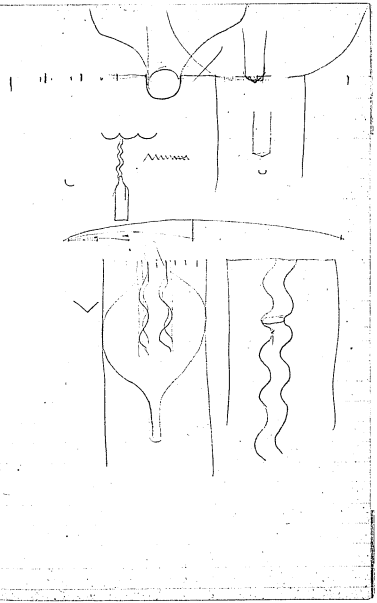
230.400

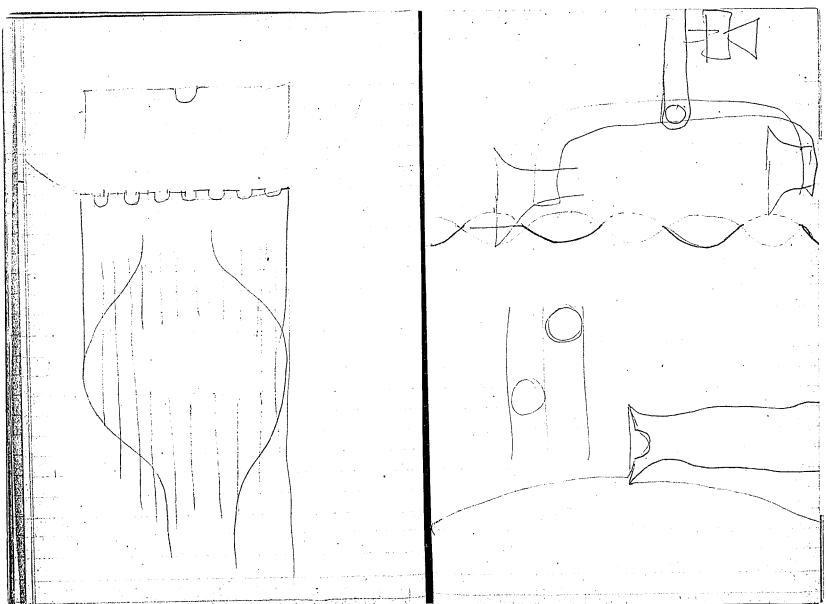
3 460 000
2 790 000
670 000

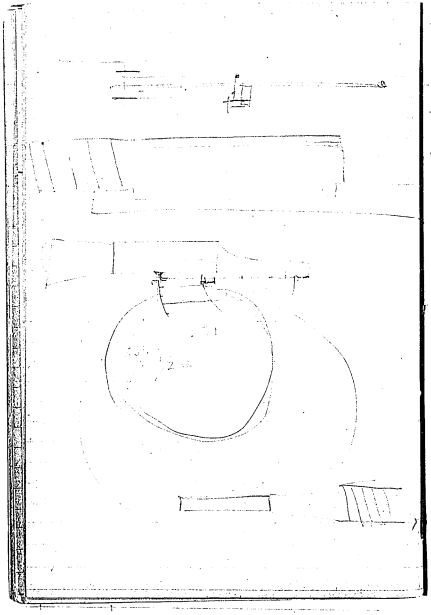
180
4
720

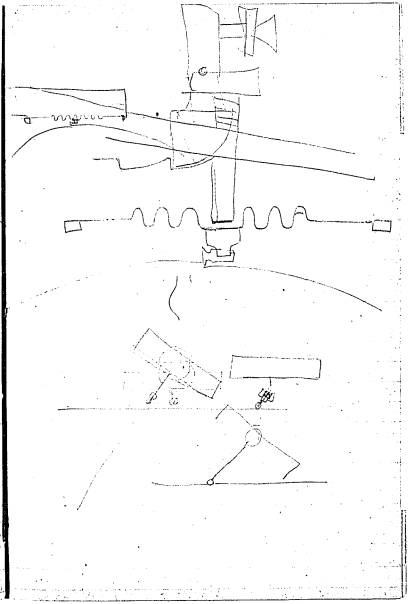
1 500
800
1.200 000

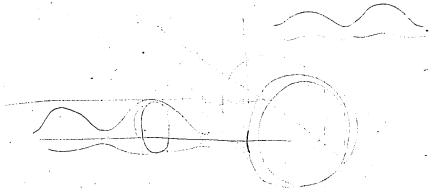
744
1 500
372 000
744
1.116 125
558 000 000
223 200 000
2.790 000







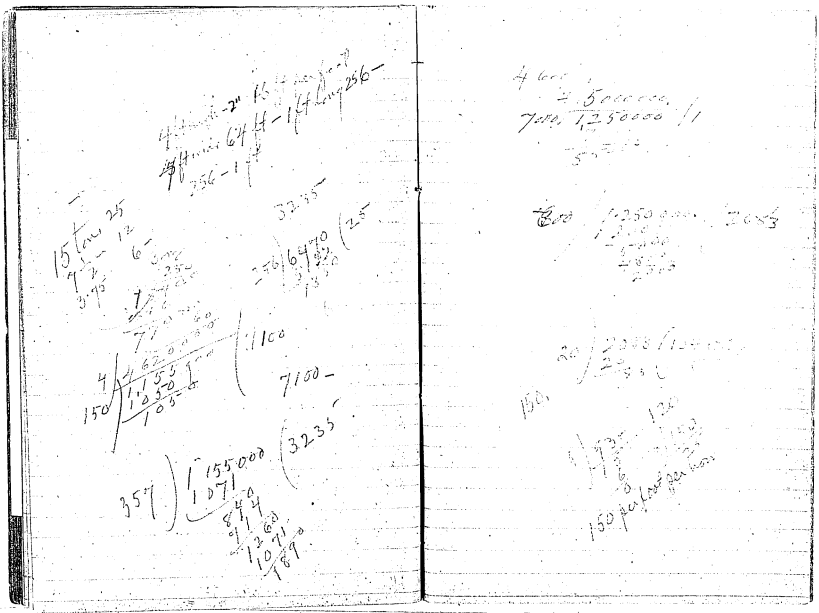
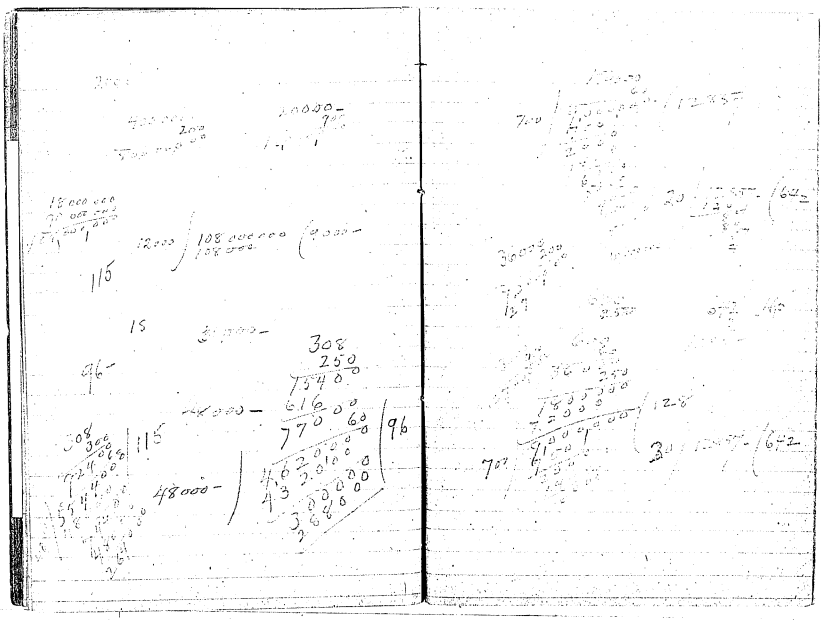
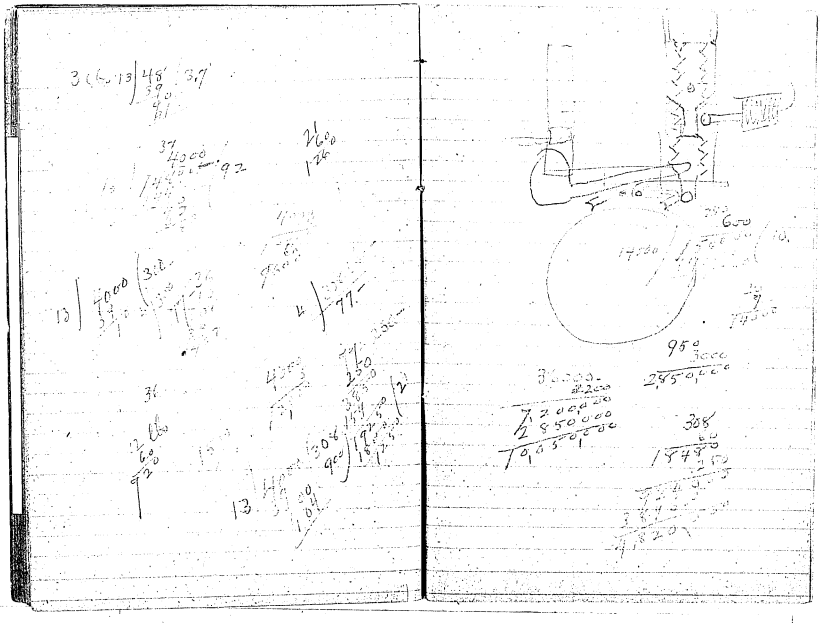
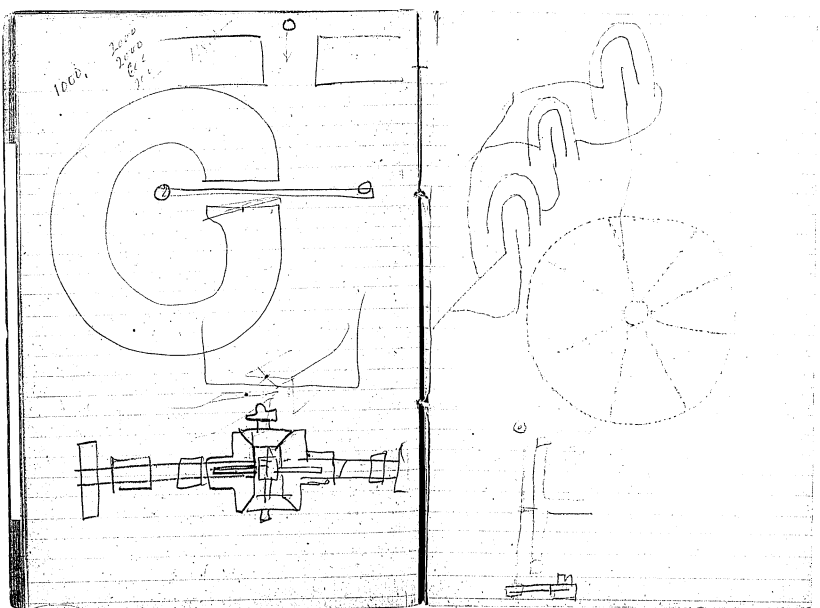




40.000.000 — 30.000.000

50 000.000 — 37.500.000

35.000.000
003

115 000. ~~50~~

40.000